Efficiency Standards Office

Blueprint

Fall 1995, No. 53

California Energy Commission

RESIDENTIAL STANDARDS

Questions and Answers

Q ***Are closable glass or metal doors required for decorative gas appliances?***

No. The only requirement of Section 150(e) (***Energy Efficiency Standards***) which applies to decorative gas appliances is the prohibition on continuously burning pilot lights (Section 150(e)2). If there is a question about whether a device is a fireplace, the distinction is that a fireplace has a hearth, chamber or other place in which a solid fuel fire may be burned, while a decorative gas appliance is for visual effect only and merely simulates a fire in a fireplace (Section 101.)

Q ***Although decorative gas appliances with continuously burning pilot lights are prohibited by the Energy Efficiency Standards (Section 150(e)2), are they legal to sell in California?***

Yes. These appliances can be sold for installation in a building which does not require compliance with the *residential* ***Energy Efficiency Standards*** mandatory measures, such as hotels/motels, high-rise residential buildings and nonresidential buildings. These appliances could also be installed in a residential alteration such as replacing one gas burning appliance with another, which does not require a permit. **NOTE**: Since local guidelines for work which requires a permit can vary from one location to another, check with the local building department about whether specific work does require a permit.

Q ***If a manufactured fenestration product is not labeled (assumed site-built default U-value), does it still need to meet the air infiltration rates of Section 116(a)1?***

Yes. Manufactured fenestration products must meet a maximum infiltration rate of 0.37 cfm per foot of operable sash crack.

Q ***When windows are labeled with a manufactured default U-value, are there any special requirements that apply to the label?***

There are two criteria which apply to fenestration products labeled with a default U-value. First, the *Administrative Regulations* (Section 10-112) require that the words "CEC Default U-Value" appear on the temporary label *in front of* or *before* the U-value (i.e., not in a footnote). Second, the U-value for the specific product must be listed. If multiple U-values are listed on the label, the manufacturer must identify, in a permanent manner, the appropriate U-value for the labeled product. Marking the correct U-value may be done in the *following ways only*:

- Circle the correct U-value (*permanent ink*).
- Black out all values *except* the correct U-value (*permanent ink*).
- Make a hole punch next to the appropriate value.

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NONRESIDENTIAL STANDARDS

Questions and Answers

CORRECTION

Blueprint No. 52 (Summer) had an error in the answer for calculating incandescent wattage. The correct question and answer follows.

Q ***In calculating lighting compliance, how is the wattage for incandescent fixtures supposed to be determined?***

It is the greater of either the proposed fixture lamp wattage or 75 watts per fixture.

Q ***When using the default tables for lamps and ballast wattage (Table B-16, Nonresidential Manual), is the value in the "2 lamps & 1 Ballast" column the total watts for the two lamps, or is it the watts per lamp which must then be multiplied by the number of lamps?***

It is the watts per lamp or tube multiplied by the number of lamps. For example, a three-lamp fixture using T-12, 48" Rapid Start F40 lamps, without tandem wiring, has a total of 136 Watts (43 Watts for each of the two lamps sharing one ballast, and 50 Watts for the remaining lamp and single-lamp ballast). If the single lamp is tandem wired to an adjacent single lamp (sharing the ballast), the total watts per fixture is 129 Watts (43 Watts for each of the three lamps). See Section 132 for tandem wiring requirements and exceptions.

Q ***One exception for lighting shut-off controls is for "an area that must be continuously lit, or lit in a manner requiring manual operation of the lighting" (Section 131(d)1, Exception No. 2). What are some examples of the correct application of this exception?***

An area which must be continuously lit would operate 24 hours, such as hotel lobbies and 24-hour grocery stores. Thus, at no time would the lights be shut off.

The latter part of the exception is provided for:

- Spaces which always have varying and unpredictable operating schedules, such as live performance theaters, arenas, and concert venues
- Spaces with lighting systems equipped with high intensity discharge (HID) lamps *AND* where the use of the space results in unpredictable on/off operation. The space requires manual operation because of the longer start/restart time of HID lamps coupled with the unpredictable schedule.

Please note that most facilities equipped with HID lighting will not fall under this exception because an operating schedule will be reasonable to predict. A facility with a predicable operating schedule and metal halide lighting could still use automatic shut-off without posing a risk to people working or conducting business in the building.

Q ***What R-value can I use for a crawl-space in a nonresidential building?***

You may use an R-6 in assembly calculations for the crawlspace (see Table B-7 for sample floor assembly calculations). This R-6 value cannot be used when the floor is over a basement or underground parking facility.

Q ***With the special construction requirements for suspended (T-bar) ceilings eliminated, are there any construction requirements or special modeling details to consider?***

Standard construction is adequate for meeting the infiltration/exfiltration requirements of the standards. If insulation is placed on the suspended ceiling, however, recessed lights must either be IC-rated (approved for insulation cover) or areas without insulation must be accounted for in the overall assembly U-value.

When recessed lights are not IC-rated, the ceiling is modeled as two parallel assemblies. The first assembly consists of ceiling insulation, acoustic tiles and a T-bar grid. The second assembly consists of the luminaire alone.

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Questions and Answers (continued)

The effective R-value of the first assembly is the sum of the T-bar/acoustic tile combined R-value, ceiling insulation and two inside air film resistances (0.61 R-value per air film). Because of the metal grids, you may only use up to 50 percent of the tile's R-value for the T-bar/acoustic tile combined R-value.

For the second assembly, the R-value of the light fixture should be calculated as two inside air film resistances (0.61 R-value per air film). If the fixtures include plastic diffusers, the R-value of the light fixture should be calculated as two air film resistances and a 1.5 inch air space (0.77 R-value).

The overall assembly R-value will be calculated as the inverse of the area weighted average U-values of the two parallel assemblies.

For example, if 10 percent of the ceiling is light fixtures without plastic diffusers and 90 percent is R-19 insulation with 1/2" tiles (tile R-value = 1.2), the calculation would be:

Assembly #1 R =
19 + [1.20/2] + 0.61 + 0.61= 20.82

Assembly #2 R = 0.61 + 0.61 = 1.22

Overall U-value =
[(1/20.82) * 0.90] + [(1/1.22) * 0.10] = 0.1252

Overall R-value = 1/Overall U-value = 8.0

NOTE: You cannot use the EZFRAME program or ENV-3 form for T-bar ceilings.

DID YOU KNOW?

Computer Program

. . . MICROPAS4, version 4.5 was recently approved by the Energy Commission for residential compliance. Beginning on January 1, 1996, all previous versions of MICROPAS4 are decertified.

Publications

. . . Two new directories are available:

Certified Gas Space Heaters Excluding Central Furnaces (P400-95-019, $9.80)

Certified Fluorescent Lamp Ballasts and Luminaire Manufacturers (P400-95-026, $5.30)

Forms

. . . Section 10-103(a) of the *Administrative Regulations* requires the documentation author's signature on the Certificate of Compliance. This change was approved after the *Nonresidential Manual* was approved. Copies of these revised forms (ENV-1, LTG-1, MECH-1), dated July 1995, are included with this issue.

Getting the Word Out

. . . In the past year, the Energy Commission has issued news releases, written articles or placed ads in several newspapers, newsletters and magazines to get the word out about the 1995 ***Energy Efficiency Standards*** . Depending on the audience, the focus was either on how to get information on the Standards or the increased attention on documentation during construction (Installation and Insulation Certificates (Section 10-103(a)(3)-(b)) and the builder's responsibilities. Information has appeared in:

- Contractors' State License Board newsletter [two announcements] (distribution: 350,000 licensed contractors)
- News releases [two] about the Home Energy Manual (distribution: 244 newspapers)
- An article in the California Association of Window Manufacturers *News Digest* (distribution: 400 members)
- An announcement in the Department of Real Estate's *Real Estate Bulletin* (distribution: 300,000 licensed real estate sales professionals)
- *CALBO News* (distribution: building code officials throughout the state)

Exam/Training

Check the back page for dates and locations for the Certified Energy Plans Examiner (CEPE) test and training opportunities.

TRAINING

Date	Location	Topic	Sponsor
11/14	N/S California	Residential CEPE	CTI
11/16	Sacramento	MICROPAS4	Enercomp
11/28	Irwindale	Nonresidential Exam Prep	CABEC
11/29	San Diego	MICROPAS4	Enercomp
11/30	San Francisco	Nonresidential Exam Prep	CABEC
12/5	Fresno	MICROPAS4	Enercomp
12/7	Ontario	MICROPAS4	Enercomp
12/12	N/S California	Nonresidential CEPE	CTI
12/15	Berkeley	MICROPAS4	Enercomp

CTI: The CALBO Training Institute (formerly CBCI) will present the Certified Energy Plans Examiner (CEPE) tests in Sacramento and Alhambra on the same day. For more information, contact CTI at (916) 654-3824.

CABEC : California Association of Building Energy Consultants is offering full-day workshops as preparation for the Certified Energy Plans Examiner tests. For more information, call (916) 974-1045.

Enercomp : These full-day classes provide training on the use of MICROPAS4 for compliance with the residential energy efficiency standards. Contact Ken Nittler at (800) 755-5908 or (916) 568-2485.

PUBLICATION ORDERS

Include a self-addressed mailing label and a check or money order (prices include tax and postage) payable to the California Energy Commission with your publication request addressed to:

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